IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Smith, Jr.	
Application No.: 10/701,146	Art Unit: 3644
Filed: 11/4/2003	Examiner: Tien Dinh
Title: Cargo Oriented Aircraft	
Attorney Docket No.: 50121	

Commissioner for Patents
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REPLY TO EXAMINER'S ANSWER
Mailed 4/14/10

The Response to Argument, Section 10, pages 7-11 of the Answer, clarifies the Examiner's position on significant issues. Applicant appreciates the Examiner's assistance by the clarification.

The Examiner asserts that scaling down the Rutan '800 aircraft, to at least to the size of the claimed "personal aircraft" (i.e. having a gross weight limit of up to 5,000 lbs and a horsepower limit of up to 500 hp,) would be within the skill level of the ordinary skilled artisan. (Evidence recited below shows that what is required is a 50% scaling down, or a "cutting in half.") For purposes of this appeal, applicant will not traverse this point. However, applicant notes that it is relevant to keep in mind what has already been asked of the skilled artisan, just for starters.

The Examiner next asserts that one of ordinary skill could add, to the "scaled down" Rutan '800, per se as it then exists, "a large opening at the rear of the fuselage through which large objects, including at least one of a motorcycle, a patient on a gurney and a man in a wheelchair can be loaded." The Examiner asserts such is possible: without **(1)** having to remove the downward fin 26 from the rear of the '800 fuselage, (because the Examiner asserts that the downward fin 26 is not there at the rear of the fuselage;) and without **(2)** moving the rear prop engines (because the Examiner alleges that a motorcycle can be "as small as less than one foot tall" and a door to accommodate such a motorcycle would be obvious. [p 9. Answer]

The Examiner's position is illustrated and documented by the following quotes from pages 9-11 of the Answer:

> "[P]lacing a door at the door at the rear would not be radically redesigning the aircraft of Rutan '800. Applicant's insistence that putting a door at the rear would require the engines to be moved is an invalidated opinion and is not based upon solid data." (p 11 lines 12-14)

> "[A] wheelchair, motorcycle, or a patient on a gurney comes in many sizes...The placement of the door at the rear does not mean that the rear pusher engines would be moved or interfere with the door." (p 10 lines 14-17)
>
> "A motorcycle can be as small as less than 1 foot tall to big motorcycles such as monster road cruisers." (page 9 lines 7-8)
>
> "Rutan '800 aircraft clearly shows the fin 26 being amidship, which is at the center of the aircraft. This fin 26 in not at the rear." (page 10, lines 9-10)
>
> "...[It] is quite clear that the Rutan '800 does not teach an empennage." (page 11, lines 2-3)

Applicant traverses both points **(1)** and **(2)** enumerated above

Applicant submits, in rebuttal, the following findings of facts:

- One of ordinary skill in the art would know, and equate, the Rutan '800 patent with its well known, highly publicized Beechcraft Starship 2000 prototype. (Knowledge of the '800 patent is deemed by law.) See for instance Appeal Brief Evidence Appendix (AB Evid. App.) Attachment (Attmt) 3A, p. 1, 2; Attmt 3B p 1, 2; Attmt 3C, p 12; Attm. 3D, p 5.

- Likewise, one of ordinary skill in the art would know of, and equate, the Rutan design patent Des 292,393, clearly a companion patent to the '800, with the Beechcraft Starship Model 115, known by skilled artisans to be an 85% scale model prototype of the Beechcraft Starship 2000. See for instance AB Evid. App. Attmt 3A, p2; Attmt 3B, p1.

- The Beechcraft Starship 2000 weighs more than 10,000 lbs. Scaling down the Starship 2000 to the size of a personal aircraft, e.g. less than 5,000 lbs, entails reducing the Beechcraft Starship 2000 to one half size. See for instance AB Evid. App. Attmt 3A, p2; Attmt 3B, p1.

- Given the above, and keeping it in mind and applying common knowledge, one of ordinary skill in the art would not believe, as a matter of fact, that the Beechcraft Starship 2000, reduced to one half size, would accommodate, per se, a "large" cargo opening between the two adjacent rear mounted props, an opening "large" enough to accommodate the loading of "a motorcycle, a patient on a gurney or a man in a wheelchair," as those items are commonly understood, read in light of the specification and the problem it addresses. Rather, one of ordinary skill would believe that there was not enough room between the two props to load such "large" objects, especially in accord with normal standard safety practices.

- Furthermore, one of ordinary skill in the art knows that there is a "downward fin" on the rear (the empennage) of the fuselage of the Rutan '800, and the Beechcraft Starship 2000, the well

known prototype for the '800 patent, which rear aft downward fin is also indicated in the drawings and the text of the Rutan '800 patent as well as clearly illustrated in the companion Rutan design patent 292,393. That rear aft downward fin, located for stabilization and as a skid between the props against over-rotation at take off, (see Rutan '800 text) would have to be relocated in order to add a large rear door at the end of the Rutan '800 fuselage. See for instance AB Evid. App. Attmt 4A p 1, 2; Attmt 4B p 1, 2; Attmt. 4C p1-6. (Where should it be relocated – to a boom supported empennage?)

DISCUSSION

Please note that the Examiner does not argue that either (1) moving the downward fin 26 from the rear of the '800 fuselage or (2) moving the prop engines, would be an "insignificant" change, such that successful flight results would be expected and predictable. The Examiner argues rather that either or both moves are necessary. Applicant submits therefore that no specific further argument or evidence is required as to why either move would require extensive testing to prove viability.

The Examiner's position is simply that neither "movement" above is necessary, a matter of fact.

The issues presented, thus, are factual. **(1)** Does the Rutan '800, as known and understood by one of ordinary skill in the art imbued with general common knowledge, teach a downward fin 26 located on the rear end of the fuselage (e.g. an "unconventional empennage")? **(2)** Would adding a rear door literally between the '800 adjacent rear props, with the '800 reduced in half to the size of the "personal aircraft," require moving the adjacent rear props in order to add "a large opening through which large objects, including one of at least a motorcycle, a patient on a gurney and a man in wheelchair can be loaded?"

Applicant asserts that the answers to both questions are "yes." Applicant submits that the Examiner errs, first, in finding that the Rutan '800 describes an aircraft without ANY empennage, that is, without downward fin 26 located rear at the aft of the aircraft, which contributes to aerodynamic stability and functions as a skid for the rear pusher props, as explicitly taught by the '800 text and drawings and other supporting documents. See evidence below.

Applicant further asserts that the Examiner errs in giving the broadest reasonable interpretation to the terms "large" and "motorcycle, patient on a gurney and a man in a wheelchair," in the context of the instant specification and the problem specifically addressed therein. The proper reasonable scope of the terms does not encompass "less than one foot tall" motorcycles (for which the stated problem of the invention would not exist.) The Examiner's interpretation should have encompassed the typical normal interpretation of terms evoked and addressed by common knowledge in the specification in light of the problem addressed.

Applicant asserts, in addition, that the Examiner errs in concluding that it is reasonable and practical, and comports with generally accepted safe aeronautic practice, to place a cargo door within a

one to two foot space directly between the props of two engines.

The Empennage Issue

In the Answer last line of page 10 and first line page 11, the Examiner cites Rutan '800 column 4, lines 26-68. Rutan '800 column 4, lines 26-51 are repeated below:

> "Referring next to the drawings for a detailed description of the present invention and initially, to FIGS. 1,2 and 3 for this purpose, reference numeral 10 has been selected to identify the aircraft broadly while numeral 12 connotes its fuselage. Numerals 14 and 16, on the other hand, have been employed to broadly identify primary and secondary wing systems, respectively, both of which will be described in greater detail presently. Numeral 18 identifies twin "pusher-type" engines projecting aft of the primary wing system to which they are attached on opposite sides of the fuselage. In the particular form shown, the conventional empennage group has been eliminated in favor of a pair of so-called "Whitcomb-type" winglets 20 located at the tips of the fixed wing members 22 that make up the primary wing system 14 along with extendable area-increasing elements 24. Winglets 20 extend vertically and provide directional stability that is customarily a function of a vertical stabilizer located amidships on the aft end of the fuselage as a part of the empennage group. A vertical fin 26 is provided amidships, however but, as shown in FIG. 2, it projects vertically downward, not up. This fin is multi-functional in that it contributes some to the aerodynamic stability of the aircraft while, at the same time, acting as a skid to prevent the propellers 28 from hitting the ground during an inadvertent overrotation." (emphasis supplied)

Applicant submits that the above cite supports Applicant's position. (1) While the "conventional empennage group" has been eliminated (in favor of winglets 20,) Rutan does not state that all empennage has been eliminated. He could have done so. (Rather, Rutan teaches a non-conventional empennage, rear aft downward fin 26.)

(2) In re Rutan's use of the term "amidships," the customary vertical stabilizer is recited as located "amidships on the aft end of the fuselage." For Rutan, clearly, an element can be both amidships and on the aft end of the fuselage.

(3) The Examiner does not dispute that the "customary vertical stabilizer" is recited as located "amidships" on the aft end of the fuselage. Applicant submits that the same is true for "downward vertical fin 26."

(4) Rutan recites that downward vertical fin 26 is provided "amidships" and contributes to aerodynamic stability while, at the same time, acts as a skid preventing the propellers from hitting ground during an inadvertent overration. One of ordinary skill in the art would know from common knowledge

that the only position in which downwardly projecting vertical fin 26 could act as such a skid (as well as contribute significantly to aerodynamic stability) is if located at the aft of the fuselage.

(5) Rutan's '800 figures are consistent with the aft position for downward fin 26.

(6) Rutan's companion design patent is absolutely clear on the point of the aft location of downward fin 26. Accord, the pictures of the '800 prototype, the Beechcraft Starship 2000.

(7) Being located "amidships" does not rule out being located "on the aft end," as Rutan uses the term. Accord independent dictionary definitions of record. See AB Evid. App. Attmts.

(8) In conclusion, ample independent evidence, including the contemporaneous companion design patent 292,399 to the Rutan '800 as well as a variety of pictures of the well known Rutan '800 prototype, the Beechcraft Starship 2000, all illustrate that the Rutan '800 design has a downward vertical fin 26 located on the aft end of the fuselage, serving the functions of a skid to protect the twin pusher engine propellers against over rotation, as well as adding aerodynamic stability.

Rear Door on the '800 Issue

One of ordinary skill in the art understands that the tandem rear prop engines of the Rutan '800, particularly if sealed down to half size, are located so close together on the rear of the fuselage that there is no room, under common principles of design safety, for a rear cargo door on the end of the fuselage between those two prop engines. There is particularly no room to load a motorcycle, a patient on a gurney or a man in a wheelchair.

Broadest Reasonable Interpretation "a large opening of the rear of the fuselage through which large objects, including at least one of a motorcycle, a patient on a gurney and a man in a wheelchair can be loaded"

The broadest reasonable interpretation of "large opening at the rear of the fuselage through which large objects, including at least one of a motorcycle, a patient on a gurney and a man in a wheelchair can be loaded," when read in the light of the specification and the problem addressed therein, is an opening of a size at least large enough to accommodate a normal, typical motorcycle, gurney or wheelchair. Such would be understood by the ordinary skilled artisan in the context of the specification and the problem addressed therein.

Miscellaneous Points

Applicant mentions the following points to indicate a continued lack of acquiescence.

I. The Examiner errs in finding that "canard" has only one meaning, the meaning which Applicant refers to as the "canard surface," (and which is further in accordance with the use specifically delineated in the specification). The Examiner errs in finding that Applicant's use of the term "canard" in claims 1 and 11 is misleading. Applicant has in the record three dictionary definitions supporting Applicant's position and clearly states in the specification how Applicant uses the term "canard" and "canard

surface," in light of the plurality of meanings, to avoid confusion, and clearly states what applicant means by the term "canard" and "two surface canard."

II. The recitation in claims 1 and 11 of a motorcycle, patient on a gurney and a man in a wheelchair are not merely recitations of intended use carrying no patentable weight. The recitation of the motorcycle, patient on a gurney and a man in a wheelchair illustrate what is meant, in the particular context, by "large" objects to be loaded through a "large" opening at the rear of a fuselage (and further in the context of a "personal" aircraft having a gross weight limit of up to 5000 pounds and a horsepower limit of up to 500 hp, and in the context of the problem addressed.) The recitation of the motorcycle, patient on a gurney and a man in a wheelchair relates back to the statement of the problem and the solution of the problem in the specification and the context for the use of the term "large." E.g. See Appeal Brief "C. Problem and Solution."

III. The Rutan '800 does <u>not</u> disclose an aircraft "without empennage." The Rutan '800 discloses an aircraft having a "non-conventional" empennage, namely downward fin 26 at the aft end of the fuselage. See above

IV. In the context of a personal aircraft, e.g. a weight limit up to 5000 lbs and horsepower up to 500 hp, and in the context of tackling the problem of loading "large" objects therein, the recitation of a large opening of at least five feet high and four feet wide is one way to quantify and illustrate Applicant's solution to the problem. The reference to five feet high and four feet wide illustrates an opening admitting a motorcycle, a patient on a gurney and a man in a wheelchair. (Of relevance, one of ordinary skill in the art would view a five feet high four feet wide rear opening as impossible with the Rutan '800, scaled to the size of a "personal" aircraft.)

Respectfully Submitted,

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Date

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